ROCKS and MINERALS

A Magazine for Mineralogist, Geologist and Collector . . .

. . . . . *Official Journal of The Rocks and Minerals Association*

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THE ROCKS AND MINERALS ASSOCIATION

PEEKSKILL, N. Y.

Organized in 1928 for the increase and dissemination of mineralogic knowledge

To stimulate public interest in geology and mineralogy and to endeavor to have courses in these subjects introduced in the curricula of the public school systems; to revive a general interest in minerals and mineral collecting; to instruct beginners as to how a collector can be made and cared for; to keep an accurate and permanent record of all mineral localities and minerals found there and to print same for distribution; to encourage the search for new minerals that have not yet been discovered; and to endeavor to secure the practical conservation of mineral localities and unusual rock formations.

Ever since its foundation in 1928, the Rocks and Minerals Association has done much to promote the interest and mineralogy. It has sponsored outings, expeditions, formations of mineralogical clubs and the printing of many articles that have been a distinct contribution to mineralogy.

Those of our readers who are members of the Association can rightly feel that they too were sponsors of these many achievements that have helped to give mineralogy a national recognition. Among your friends there must be many who would like to have a part in the Association's work—to share with you the personal satisfaction, the pleasure, and the benefits of membership. Will you give your friends this opportunity to join the Association by nominating them for membership?

Each new member helps to extend the Association's activities—helps to make your magazine larger, better, and more interesting, and above all assists in the dissemination of mineralogical knowledge.

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Mineralogical clubs which subscribe for **Rocks and Minerals** also become affiliated members of the Rocks and Mineral Association and enjoy all the advantages which such an affiliation affords.

A number of clubs hold membership in the Association, participate in the annual outings, and co-operate in many ways in furthering the aims and ambitions of the Association.

Affiliation with the world's largest mineralogical society cannot fail to increase membership, enlarge circles of acquaintanceship, and stimulate a keener interest in mineralogy.

A list of affiliated clubs will be found among the back pages of the magazine.

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ROCKS and MINERALS PEEKSKILL, N. Y., U. S. A.

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Chips from the Quarry

Grenzigs Celebrate 50th Wedding Anniversary

Mr. and Mrs. John A. Grenzig, of Brooklyn, N. Y., celebrated their golden Wedding anniversary on Thurs., April 13th with a reception to their friends in commemoration of so happy an occasion on Sat., April 15th. It was the pleasure of the Editor of ROCKS AND MINERALS to be present at the reception and to extend to Mr. and Mrs. Grenzig, on behalf of the Rocks and Minerals Association, the hearty congratulations and best wishes of all the members. Both Mr. and Mrs. Grenzig are still young in body and mind and are usually present at all of the mineral outings held in this section of the country. May they be with us for many more years and may their interest in mineralogy never diminish.

We Make An Exchange

We recently received an assortment of mineral specimens from Mr. Gunnar Bjareby, a member residing in Boston. The specimens were of good size, of excellent quality, completely labelled, and had been carefully packed for shipment. All in all, the specimens sent us in exchange for those he had picked out on a recent visit to our office were so thoroughly satifactory that they deserve more than passing attention.

Mr. Bjareby is Swedish and a most courteous gentleman. He is that type of mineralogist any collector would be proud to call a friend. He reminds us of another Swedish mineralogist, Mr. Albert Karlsson who is well known to collectors of the New York-New Jersey area as for many years he had resided in New York City, and still has his residence there although for the past two or three years he has been in Sweden.

Both Messrs. Bjareby and Karlsson are true lovers of minerals. They collect only the best and when they part with any of their duplicates—be it in exchange for specimens not in their collections or as gifts to friends—the specimens they give are of excellent quality. Each is so completely and accurately labelled that it is a real and valuable acquisition to one's collection.

Peter Zodac

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AN ARTIFICIAL KEY TO THE CLASSIFICATION OF ROCKS FOR THE STUDENT AND LAYMAN

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INTRODUCTION

The material contained in this artificial key to the classification of rocks is not purported to contain any new material but rather to present to the student and amateur nature student well-known material organized in an orderly fashion to enable the non-professional student with a minimum of previous knowledge to determine the proper names of various rocks that may be found while traveling through the country. For the teacher and student in a formal laboratory course in geology, the following key is an attempt to solve the old question of technique of presenting material to the student.

In general there are two methods used in teaching the student to recognize the various rocks at sight, namely by the use of labeled specimens, or by the use of unlabeled material which the student identifies by the use of a suitable key. Of these two methods, the use of labeled specimens has the tendency to promote the memorization of the individual specimens rather than the diagnostic characters that are characteristic of that kind of rock no matter where found, whereas the use of unlabeled material with a suitable key will tend to focus the attention of the student on the diagnostic characteristics of the various kinds of rock so that they will be recognized wherever found, or if not readily recognized will form a suitable background for the student to determine what the rock is by the use of a suitable key.

The bilateral type of key has been chosen as the type of key most suitable for student use in learning the diagnostic characteristics of the various types of rocks for in this type of key, the attention of the student is focused on but two characteristics at a time, an advantage as it is easier for the average student to keep but two items in mind while looking at the specimen than three or four.

The bilateral key is so constituted that the larger and more general characteristics, are first observed which are common to a large number of rocks, then in order smaller and more detailed observations are called for until all but two possibilities are eliminated, thus giving the distinguishing features between closely related or readily confused kinds of rocks.

USE OF THE KEY

The items used to distinguish between the various kinds of rocks are listed in a definite order, numbered consecutively on the left hand side of the key. To trace down any kind of rock simply take the specimen of rock and beginning with step 1, the user should ask himself, does the specimen conform to part a or b. Then whichever description best fits the specimen, it will be followed by a name or number at the right hand margin of the key. In the event a number is given, the user should look for that number in the left hand margin, and follow the process outlined above until a name is reached in the right hand margin. This name is the name applied to the particular specimen to be identified.

In several instances in the key, there is some question as to whether a more generalized name should be used if certain more minute and detailed observations are made. In these cases this key has placed the group name followed by a number to the extreme right, so that if it be desired to find the more exact name applied to the various members of the group, the student may do so.

ACKNOWLEDGMENTS

The writer wishes to express his deep and sincere appreciation to H. J. Van Cleave of the Department of Zoology of the University of Illinois for his encouragement in the preparation of this key and for the model furnished by H. J. Van Cleave in his bilateral key for the classification of the Uniodonae. The writer is indebted to C. A. Chapman of the Geology Department, University of Illinois, for his helpful suggestions and criticisms of the technical material contained in this key.

KEY

1. (a) Specimen consisting of homeogeneous material, individual particles in distinct geometric figures, crystals, visible to the naked eye..*Minerals* (For further identification see key in any textbook of mineralogy.)

   (b) Specimen consisting of a heterogeneous mixture, a number of different minerals, or homeogeneous material without distinct geometric form of the constituent particles visible to naked eye ..... *Rocks* 2

2. (a) Consists of numerous interlocking mineral grains, either visible to the naked eye or visible with a hand-lens, or glassy in character ..... *Igneous Rocks* 4

   (b) Mineral grains *not interlocking;* show some degree of rounding; or constituent particles in definite parallel arrangement; or reacting to dilute HCl 3

3. (a) Consisting of either a single mineral in definite leaves or foliated form; distinctly banded with such minerals as quartz, feldspar, and pyroxene-amphibole or mica forming individual bands; or effervescing with HCl over entire surface, calcite grains distinctly crystalline; or consisting entirely of quartz in the form of sand-size particles cemented together with secondary quartz, when rock is split the line of fracture passes thru the individual grains instead of around them ...*Metamorphic Rocks* 15

   (b) Constituent particles in parallel arrangement; particles *not* definitely foliated; Constitutent particles rounded to subangular; friable at times; may contain fossils, ripple marks, mudcracks, or even laminae which show gradation in size of grain

between planes; lines of separation (bedding planes) distinct, even individual sheets show gradation in size of grain from coarse to fine; distinctly crystalline, individual crystals somewhat rounded in cross section, effervescing with acid; dense but effervescing with HCl.. ..... *Sedimentary Rocks* 59

IGNEOUS ROCKS

4. (a) Distinctly crystalline, individual crystals visible (Phaneritic); individual crystals barely visible to naked eye (Aphanatic) (Dense) or distinctly glassy in texture. 5
   (b) Distinctly porous, (vesicular) or composed of fragments which are either glassy, crystalline or porous in texture. 39
5. (a) *Not* distinctly glassy in texture 6
   (b) Distinctly glassy in texture. 38
6. (a) All constituent grains approximately one size 7
   (b) Two distinct sizes of grains readily visible, certain crystals distinctly larger (phenocrysts) than ground mass.. 24
7. (a) Constituent grains readily visible to naked eye, distinctly grained 8
   (b) Constituent grains *not* readily visible to naked eye, dense or stony in appearance 18
8. (a) Predominantly light in color, light colored minerals distinctly in excess of dark colored minerals 9
   (b) Predominantly dark in color, dark minerals in excess of light colored minerals 12
9. (a) Very fine grained (1 mm or less in diameter) or very coarse, (larger than 5 mm in diameter or larger than size of pea) 17
   (b) Constituent grains medium in size, from 1 to 5 mm in diameter 10
10. (a) Containing quartz 11
    (b) Without quartz .....*Syenite*
11. (a) Predominent feldspar present of the plagioclase type .... *Grano-Diorite*
    (b) Predominant feldspar of the orthocase type .....*Granite*
12. (a) No light colored minerals present 13
    (b) Light colored minerals (feldspar) present 15
13. (a) Olivine present....*Peridotite*
    (b) *No* olivine present 14
14. (a) Little or n hornblende present .....*Pyroxenite*
    (b) Hornblende-rich rocks .... *Hornblendite*
15. (a) Light colored mineral (feldspar present); character of plagioclase feldspar and ferro-magnesian mineral undeterminable .*Gabbro-Diorite*
    (b) Feldspar may be classified as either calcic or sodic plagioclase and the ferro-magnesian mineral recognizable as either pyroxene or amphibole 16
16. (a) With calcic plagioclase feldspar, and the ferro-magnesian mineral one of the pyroxene group .....*Gabbro*
    (b) With sodic plagioclase feldspar and ferro-magnesian mineral one of amphibole group .....*Diorite*
17. (a) All grains size of pea (5 mm in diameter) or larger ..... *Pegmatite*
    (b) All grains very fine grained, less than 1 mm in diameter but recognizable as distinct grains .....*Aplite*
18. (a) Felsitic texture, dense; constituent grains *not* visible .. 19
    (b) Dense texture, grains not visible to naked eye; glassy appearance with conchoidal fracture prominent of broken surfaces 38
19. (a) Light in color (red, buff, or tan) .....*Felsite* 20
    (b) Dark in color (gray, black, purple, blue-black)...*Basalt* 23
20. (a) Felsites containing quartz... 21
    (b) Felsites without quartz 22
21. (a) Chief feldspar orthoclase ... .*Rhyolite*
    (b) Chief feldspar plagioclase.. ..... *Dacite*

22. (a) Chief feldspar orthoclase .. .. *Trachyte*
    (b) Chief feldspar plagioclase.. ..... *Andesite*
23. (a) With distinct "Lath" structure of feldspar grains visible ..... *Diabase*
    (b) With bubble-like cavities filled with secondary mineral filling..*Amygdaloidal Basalt*
24. (a) Ground mass distinctly grained, constituent grains readily recognized with naked eye 25
    (b) Ground mass distinctly dense, constituent grains *not* recognizable with naked eye, or glassy 33
25. (a) Predominately light in color, light colored minerals distinctly in excess of dark colored minerals 26
    (b) Predominately dark in color, dark minerals in excess of light colored minerals 28
26. (a) Contains quartz 27
    (b) Without quartz ..... *Syenite Porphyry*
27. (a) Dominant feldspar plagioclase ....*Grano-Diorite Porphyry*
    (b) Dominant feldspar orthoclase ..... *Granite Porphyry*
28. (a) *No* light colored minerals present 29
    (b) Some light colored minerals present (feldspar) 31
29. (a) Olivine present in recognizable grains .... *Peridotite Porphyry*
    (b) *No* olivine present 30
30. (a) Little or no hornblende present....*Pyroxenite Porphyry*
    (b) Hornblende-rich .... *Hornblendite Porphyry*
31. (a) Light colored mineral feldspar; impossible to tell whether feldspar is calcic or sodic plagioclase ....*Gabbro-Diorite Porphyry*
    (b) Light colored mineral recognizable as either calcic or sodic plagioclase feldspar, ferro-magnesian minerals recognizable as amphiboles or pyroxenes 32
32. (a) With calcic plagioclase feldspar; ferro-magnesian mineral one of pyroxene group .... *Gabbro Porphyry*
    (b) With sodic plagioclase feldspar; ferro-magnesian mineral one of the amphibole group ..... *Diorite Porphyry*
33. (a) Ground mass distinctly dense, stony in texture, constituent grains not readily visible to naked eye 34
    (b) Ground mass distinctly glassy in texture 38
34. (a) Light in color (red, buff, tan) dense stony ground mass .....*Felsite Porphyry* 35
    (b) Dark in color, (gray, black, purple, blue-black) dense stony textured ground mass ..... *Basalt Porphyry*
35. (a) Contains quartz 36
    (b) Without quartz 37
36. (a) Chief feldspar orthoclase ... . *Rhyolite Porphyry*
    (b) Chief feldspar plagioclase .. .. *Dacite Porphyry*
37. (a) Chief feldspar orthoclase .. .. *Trachyte Porphyry*
    (b) Chief feldspar plagioclase .. .. *Andesite Porphyry*
38. (a) Glassy texture and glassy in appearance, conchoidal fracture when broken..*Obsidian*
    (b) Glassy ground mass, phenocrysts present ...*Vitrophyre* (Obsidian Porphyry)
39. (a) Distinctly porous (vesicular) in texture 40
    (b) Fragmental rocks composed of consolidated or unconsolidated fragments varying in size from dust to boulder size particles which are glassy, granitic, felsitic, or porous in texture 41
40. (a) Individual vesicles (pores), large and coarse with relatively thick walls of stony texture between individual vesicles ..... *Scoria*
    (b) Individual vesicles fine, relatively small; walls between individual vesicles thin, somewhat glassy in texture. ..... *Pumice*
41. (a) Fragments angular, or irregular in shape, size varia-

ble from dust size to boulder size—consolidated or unconsolidated 42

(b) Large fragments of stony texture, with twisted or cracked external shell, size variable .. *Volcanic Bombs*

42. (a) Fragments unconsolidated, irregular in shape, size variable 43

(b) Fragments irregular in shape, constituent fragments volcanic in origin, consolidated, more or less bedded in appearance ..... *Agglomerate*

43. (a) Constituent particles larger than dust size 44

(b) Constituent particles dust size, somewhat consolidated, friable; gritty to teeth, white to whitish pink color ..... *Volcanic Tuff*

44. (a) Angular fragments of volcanic material, individual particles about size of a walnut ..... *Lapilli*

(b) Constituent fragments size of a pea (5 mm in diam.) ... . *Volcanic Ash*

METAMORPHIC ROCKS

45. (a) Metamorphic rocks showing slaty cleavage (ability to split into relatively thin plates along smooth plane surfaces) definitely foliated (may be split into thin leaves but along smoothly irregular uneven surfaces) 46

(b) Metamorphic rocks somewhat crystalline; rudely or indistinctly banded by the more or less parallel arrangement of the constituent mineral particles; or effervescing with HCl; or dense, compact, with greasy lustre, conchoidal fracture; or composed largely of quartz grains thru which fracture passes or distinctly massive 54

46. (a) Splits into relatively thin layers or sheets with smooth surfaces; evidence of bedding may be visible but direction of cleavage may or may not be parallel to bedding as indicated by gradation of grain size; hard, had distinctly flat ring when dropped on table top 47

(b) Splits into irregular layers, (foliated) individual folia show rather hummocky smoothly irregular surface which may be studded with definite mineral crystals ... 48

47. (a) Hard, scratched by nail, but not by finger nail; shows slaty cleavage; direction of cleavage either at some angle to the bedding or parallel to the bedding; gray in color.. ..... *Gray Slate*

(b) As above; red in color .... *Red Slate*

48. (a) Distinctly foliated; surfaces of individual folia smoothly irregular; studded with crystals of one mineral; or predominately all one mineral. 49

(b) Distinctly foliated; folia fine, irregular, banded in appearance; consists of feldspar, quartz, ferro-magnesian minerals and relative large amount of mica ....*Quartz Feldspar Schist*

49. (a) Essentially a single mineral, readily scratched with finger nail, or nail; greasy to touch 50

(b) Essentially one mineral, or studded with distinct crystals of a single mineral along the planes of schistosity *not* greasy to the touch 51

50. (a) Predominant mineral chlorite ..... *Chlorite Schist*

(b) Predominant mineral talc .. .. *Talc Schist*

51. (a) Planes of schistosity *not* studded with definite crystals 52

(b) Planes of schistosity studded with definite crystals, the kind of mineral in the crystals determines the variety of schist; e.g. if the crystals are garnet ....*Garnet Schist*

52. (a) Predominant mineral one of the mica group..*Mica Schist*

(b) Predominant mineral in needle-like crystals, harder than 4.0 with some indication of one interfacial angle of the mineral reaching 124° ....*Hornblende Schist* (Amphibolite Schist)

53. (a) Crystalline; rudely to indistinctly banded by more or less parallel arrangement of constituent minerals; or effervescing with HCl 54
(b) Dense, compact, conchoidal fracture; massive; or largely composed of individual sand size, quartz grains, fracture passes thru constituent quartz grains 56

54. (a) Rudely banded, does *not* effervesce with HCl over entire surface 55
(b) Effervesces with HCl over entire surface, consists largely of calcite either all one color or with crude color bands ..... *Marble*

55. (a) Crude banding due to arrangement of quartz, feldspar, and some ferro-magnesian mineral .....*Gneiss*
(b) Rock composed entirely of quartz grains of sand size, fracture passes thru constituent grains; banding due to staining by deposition of mineral matter from solution ..... *Quartzite*

56. (a) Dense, compact, or earthy; greasy luster, composed of quartz grains of sand size; fracture passes through the constituent grains instead of around them 57
(b) Black, massive, vitreous luster; conchoidal fracture, will *not* scratch glass..*Anthracite*

57. (a) Massive, clay odor when moistened, earthy texture, irregular fracture, usually some shade of red or reddish purple ..... *Argillite*
(b) Without clay odor; massive, granular; constituent grains largely quartz, fracture passes thru constituent grains; or finely micaceous. 58

58. (a) Constituent grains quartz of sand size, fracture passes thru constituent grains .... *Quartzite*
(b) Massive, finely micaceous, mica covers fresh surface to give "showy appearance" .. .. *Phyllite*

SEDIMENTARY ROCKS

59. (a) Constituent rock or mineral fragments easily visible or barely visible to naked eye; consolidated or unconsolidated; if reacts to dilute HCl, reaction occurs around and not on the constituent grains 60
(b) Constituent fragments largely organic debris; crystalline, or reacts over entire surface to dilute HCl; consolidated spherulites, that in cross-section, show concentric rings; with hematitic red streak, or a heterogeneous mass with angular pebbles set in clay matrix which effervesces freely with dilute HCl 84

60. (a) Constitutent fragments held together by some cementing material 73
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61. (a) Constituent particles all approximately one size, (well sorted) 62
(b) Constituent particles of varying sizes, poorly assorted .. 69

62. (a) Individual particles as large or larger than a walnut, *distinctly* angular in outline .. .. *Talus*
(b) Individual particles distinctly rounded, subrounded or if angular, less than size, .07 inch in diameter 63

63. (a) Particles rounded to subangular, larger than 10 inches in diameter ..... *Boulders*
(b) Particles smaller than 10 inches in diameter 64

64. (a) Rounded to subangular particles from 2.5-10 inches in diameter ..... *Cobbles*
(b) Particles smaller than 2.5 inches in diameter 65

65. (a) Particles rounded to subangular, varying from .07 inch to 2.25 inches in diameter.. ..... *Pebbles*
(b) Particles rounded to subangular, less than .07 inch in diameter 66

66. (a) Particles rounded to subangular varying from .07 to .0025 inch in diameter, defi-

nitely gritty to touch..*Sand*

(b) Particles less than .0025 inch in diameter, *not* gritty to fingers 67

67. (a) Particles gritty to teeth, varying from .0025 to .0001 inch in diameter 72

(b) Particles *not* gritty to teeth, less than .0001 inch in diameter 68

68. (a) Particles *not* gritty to teeth, less than .0001 inch in diameter dust size, yield definite clay odor when moistened ..... *Clay*

(b) Particles dust size, angular, less than .0001 inch in diameter, yellow, tan, buff or brown in color; reacts to HCl. In exposures stands in vertical banks, no indication of bedding, to teeth may or may not be gritty .. .. *Loess*

69. (a) Does not give off clay odor when moistened 70

(b) Gives off distinct clay odor when moistened, a heterogeneous mixture predominately of clay sized particles with embedded irregularly angular to subangular fragments of varying composition, and size, may react with HCl.....*Glacial Till*

70. (a) Constituent fragments rounded to subangular, or angular; not well sorted, varying in size from .01 to 2.5 inches in diameter 71

(b) Constituent fragments varying in size from .07 (sand) to .16 (fine gravel) inches; resembles very poorly sorted sand ..... *Alluvium*

71. (a) Fragments essentially rounded to subrounded in outline ..... *Gravel*

(b) Fragments essentially angular ..... *Talus*

72. (a) Particles .0025-.0001 inch in diameter, (dust size) gritty to teeth, smooth to touch .. .. *Silt*

(b) Particles .0025-.0001 inch in diameter (dust size), gritty to teeth, have rough touch, like gritty dust, under hand lens angular particles of quartz and feldspar visible; have strong clay odor when moistened ... *Volcanic Tuff*

73. (a) Constituent particles all approximately one size, well sorted 74

(b) Constituent particles of varying sizes, poorly sorted 81

74. (a) Constituent particles 1.5 inches on up, size of walnut and larger, distinctly angular in outline; surfaces of angular particles not scratched .... *Breccia*

(b) Constitutent particles distinctly rounded or subangular in outling 75

75. (a) Constituent particles varying in size from .07 inch in diameter to larger..*Conglomerate*

(b) Particles rounded to subangular, less than .07 inch in diameter 76

76. (a) Constituent particles varying from .07 to .0025 inch, rough to gritty to touch .. 77

(b) Constituent particles less than .001 inch in diameter, dust size, not gritty to touch ... 78

77. (a) Constituent particles, small, .07 to .0025 inch in diameter, definitely rough or gritty to touch; friable, particles rub off in hand; scratched by fingernail, porous .... *Soft Sandstone*[1]

(b) Constituent particles small, .07 to .0025 inch in diameter, definitely rougher gritty to touch, particles will not rub off in hand, fracture occurs around constituent particles; not scratched by fingernail...*Hard Sandstone*[1]

78. (a) Constituent particles less than .0001 inch in diameter, dust size, individual particles not visible to naked eye, smooth, not gritty to touch. 80

(b) Constituent particles less than .0001 inch in diameter, dust size, individual particles not readily visible to naked eye, definitely gritty to teeth 79

79. (a) Not gritty to touch, but gritty to teeth.....*Siltstone*

(b) Slightly gritty to touch, definite clay odor if moistened .... *Argillaceous Sandstone*[1]

80. (a) Uniformly fine grained, laminated, with definite clay odor when moistened, scratched readily with finger nail ..... *Soft Shale*[2]
(b) Uniformly fine grained, laminated, with definite clay odor when moistened, *not* scratched readily with finger nail, but readily scratched with nail, yields dead, dull earthy sound when dropped on wood surface .... *Hard Shale*[2]

81. (a) Constituent particles not of undoubted volcanic origin with definite clay odor 82
(b) Constituent particles of definite volcanic origin, definitely unsorted and unstratified ..... *Agglomerate*

82. (a) Readily broken by hammer.. 83
(b) Resists fracture by hammer, hard compact argillaceous, semi-quartzitic or micaceous matrix with embedded subangular to angular facetted pebbles of various rock types, that usually are striated ... . *Tillite*

83. (a) Contains shells of organisms, crumbles to touch, reacts to HCl .....*Marl*
(b) Does not contain shells of organisms, larger particles angular, some of the larger showing striated surfaces, matrix with definite clay odor, may effervesce with HCl ..... *Glacial Till*[4]

84. (a) Constituent fragments largely organic debris; crystalline or in powdered form reacts to dilute HCl; consolidated spherules that in cross section show concentric rings; or earthy in appearance giving definite red hematitic streak on porcelain plate... 85
(b) A heterogeneous mass consisting of a clay matrix, with embedded angular to subangular fragments, larger fragments of various rock types scratched on flat surfaces by glacial striae, clay matrix effervesces freely with dilute HCl and yields clay odor when moistened.. ..... *Glacial Till*

85. (a) Reacts in powdered form with dilute HCl 86
(b) Does *not* react in powdered form with dilute HCl 94

86. (a) Reacts *without* being pulverized with HCl 88
(b) Reacts only in pulverized form with HCl, or if reaction occurs without pulverization, the rate of reaction is very slow 87

87. (a) Fossils present; sometimes porous ..... *Fossiliferous Dolomite*
(b) No fossils, porous, dense or crystalline .....*Dolomite*

88. (a) Reacts freely with dilute HCl, *does not* crumble under pressure of fingers 89
(b) Reacts freely with dilute HCl; crumbles in hand under pressure of fingers; contains numerous shells that may be picked out whole; shells similar to forms found in fresh water at present time.. ..*Marl*

89. (a) No fossils present; homogeneous or granular to dense or composed of minute concretions 90
(b) Fossils present, either entire or in fragments 101

90. (a) Dense, even grained, conchoidial fracture may be present, individual particles not visible to naked eye, or distinctly crystalline 91
(b) Distinctly granular, individual granules where visible in cross-section show concretionary structure of concentric rings arranged around a nucleus .. *Oolitic Limestone*

91. (a) Dense, even grained, conchoidal fracture may be present, individual particles not visible to naked eye 92
(b) Distinctly crystalline, crystals either circular or rhomboidal in outline. (Crystalline or Bird's Eye Limestone) 93

92. (a) Light in color; tan, buff, brown, gray, dense, even grained, with smoothly *curved* fracture surfaces.... ....*Lithographic Limestone*[3]
(b) Black in color, dense..... .....*Black Limestone*[3]

93. (a) Individual crystals, rhomboidal or angular in outline .....*Crystalline Limestone*[3]
(b) Crystals apparently limited by circular outline, since these are cleavage faces of calcite in fossil curved joints .....*Bird's Eye Limestone*

94. (a) Distinct impressions of plant remains present; plant material or its derivitives form entire rock; some shade of dark brown, red brown, or black, readily scratched with finger nail, or if black, leaves black smudges on hands.... 95
(b) Without impressions of plants; red, white, pink, gray, brown, etc., in color; have definite crystalline appearance; or give red streak on porcelain plate 99

95. (a) Black in color, gives smoky flame when tested by holding in match flame 96
(b) Shows woody structure or has banded appearance, soft, compact to spongy, texture, brown, reddish brown in color 98

96. (a) Definite bands or layered appearance, namely vitreous, dull, and charcoal-like band that usually shows woody structure of plant ....*Bituminous Coal*
(b) Not definitely banded..... 97

97. (a) Dense, stony in appearance, or finely granular..... .....*Cannel Coal*
(b) Compact, earthy, dull, fragile, may show woody structure .....*Lignite*

98. (a) Brown, red brown in color, spongy, definite woody fibers visible to naked eye....*Peat*
(b) Brown, red brown in color, dense, with some indication of woody character or faint banding ..... *Red Lignite*

99. (a) Leaves red streak on porcelain plate, red in color, earthy, may contain fossils or oolites .....*Sedimentary Iron Ore*
(b) Definitely crystalline, any color, no red streak..... 100

100. (a) Salty taste; granular when broken, fragments show tendency toward cubic cleavage .....*Rock Salt*
(b) Finely crystalline, readily scratched by fingernail, usually white or gray in color .....*Rock Gypsum*

101. (a) Contains whole fossils, or fragments of shells, readily visible to naked eye 102
(b) Rock composed of microscopic fossil shells; friable; porous; white; marks on wood or slate; reacts to HCl ..... *Chalk*

102. (a) Fossils present either whole or in large pieces, dense lime matrix present ....*Fossiliferous Limestone*[3]
(b) Fossils or modern shells present as fragments only, porous; no dense lime matrix present .....*Coquina*

FOOTNOTES:

1. Sandstones may be accurately described by indicating by means of an adjective the kind of cement or impurities present, namely, calcareous, dolomitic, ferruginous or argillaceous sandstones.
2. Shales may be described accurately by using an adjective to describe the kind of cement or impurity present, namely, calcareous, carbonaceous, dolomitic, sandy or silty shales.
3. Limestones may be described accurately by using adjectives to describe principal impurity, namely, dolomitic limestones, sandy limestones, argillaceous limestones, or ferruginous limestones.
4. Glacial till has been placed in several different positions in this key in recognition of the fact that it is perfectly possible to place several interpretations on the reactions that make for the recognition of glacial till as such, and to make sure the various kinds are recognized as varieties of glacial till.

Remember the Date— Saturday, June 17, 1939.

(Rocks & Minerals Ass'n Convention)

Rush in your reservations NOW if you are planning to attend the big convention which will attract members from all over the country. The dinner committee must know definitely by June 10th how many members and guests it must provide for.

Miss Evelyn Waite of Crestwood, N. Y., was the first member to send in her reservation, accompanied by check.

See back cover of this issue for further detail.

A PROBLEM IN FINDING METEORITES

By C. P. BUTLER
Calama, Chile

This article won Honorable Mention in our recent Prize Article Contest.—Editor

It is probable that every man since the dawn of intelligence has at one time or another lifted his eyes to a cloudless night sky and noted there a sudden brilliant flash or streak of light. In common parlance we have come to call these "shooting stars". They are however, in no sense stars, but actually pieces of stone or iron meteorites rapidly oxidizing as they enter the atmosphere of the earth.

The first known fall of which specimens are still preserved occurred in the same year that Columbus discovered America. On November 16, 1492 in Ensisheim, Germany, a meteorite of some 260 pounds was observed to fall. The phenomena caused such consternation among the people that it was afterwards placed in a church as a sacred object which had come direct from the Lord.

With the enormous diffusion of knowledge during the last 400 years it would seem that the discovery of meteorites would go on apace. Increasing population, man's habitation of desert regions, scientific expeditions without end; all these have not added materially to the yearly number of finds. It continues to be only 3 or 4 new falls a year. Since the first known fall there has been recorded about 1000 meteorites.

Estimates of the total number of meteorites which are large enough to penetrate the earth's atmosphere and fall to the ground, vary widely. One such estimate places the number at 900 annually for the whole earth. Narrowing this down by allowing for the area of the earth covered by water, by uninhabited jungle regions, by inhabited regions where the rainfall is excessive; it leaves but a small number for the desert regions. Add to this the fact that most of the deserts of the world are sparsely settled and it is no wonder that so few meteorites are found.

Attempts have been made to classify the localities of falls, the numbers and kinds of meteorites, but thus far these attempts have met with little success. In consequence most meteorites are found entirely by accident and mostly by people who have no previous knowledge of them. In the plains region of the States it is said that the common plow is the most effective instrument known for discovering meteorites. In the desert regions the itinerant miner and prospector probably account for more discoveries than any others.

I live in the north of Chile, which comprises one of the most famous deserts of the world. For some 800 miles north and south and around 100 miles from the ocean to the main range of the Andean Cordilleras, the Atacama desert embraces one of the most desolate, but at the same time richest regions in the world. In most of this region the annual rainfall may be as much as 2 millimeters and a few miles from the ocean the relative humidity 10%. There is no vegetation, not even the desert cactus grows here and hence any unusual object lying on the ground is readily seen. Due to the very low moisture content of the atmosphere a meteorite may lie for years exposed to the elements and suffer but little oxidation.

At various times over a period of several years I have made a systematic search in an area of some 5 or 6 square miles in the hope of finding a meteorite. Near here are level areas each as large as a football field, gently rolling, with no stones larger than one's fist. I have examined many of these, but thus far my efforts have yielded little save worn shoe leather.

The account which follows is quite opposite of the above experience. Knowing that many meteorites have been found in this region, I deemed it best to look for them in the hands of other people.

In the summer of 1936 a railroad worker on a newly projected line came across a curiously heavy stone in a little canyon. He carried it back to the camp and as the national holidays were approaching he took this stone to one of our coast towns. A friend of mine saw it and procured a small specimen which he sent to me. I was unable to identify it, so I sent it by air-express to the States for identification. In about 10 days I received it back with word that it was truly meteoritic, and was from a Pallasite.

In the meantime the owner had been enjoying a brief spell of prosperity on credit, because some one told him he had a stone containing diamonds. The actual funds for all this came from a lady who ran a boarding house. She had the stone in her possession, but her interest in it extended only to the amount of credit she had given. For me, the rest of the story was quite simple. Upon examination in the States it proved to be somewhat similar to the Ilimaes.

For several years I had heard a legend of a large iron owned by a man whom we will call Don Ramon, and for which he was asking the enormous price of 1000 pounds Sterling. The old gentleman must have been nearing his 90th year when I finally managed to call on him. I explained very carefully that I had heard of a fine iron meteorite which he had, and would he do me the goodness to allow me to see it. With the graciousness of a knight of old, he bowed his assurance, but first he must show me his house. He escorted me from room to room of a huge rambling affair replete with furniture and pictures of 50 years ago, all the time giving me in great detail the history of this and that. Many years ago he had come to the New World from Spain, and to him the Spain of Philip the Second was the finest thing that man had ever seen. While he had made a small fortune in this New World it held little fascination for him, and more especially he had no love for Americans from the States.

After some two hours of this, however, I saw the iron. He had obtained it about the year 1898 near the present station of Sierra Corda, and the price he wanted, was he said, estimated by an English geologist who once examined it. As discretely as possible I conveyed to him that I thought the price absurd and indicated what I would pay. He immediately declined, and after a lengthy "adios", I departed.

As it turned out, he was negotiating at this time for some capital to reopen one of the old nitrate fields which had lain idle for many years. When I heard of this I commissioned a man who runs a hotel to approach the old gentleman again. This happened to be the propitious time, and I bought it then for just a little more than I said I would pay. After sev-

eral months delay involving transportation, it was sent to Washington and after being cut proved to be a hexahedrite.

At one time I was visiting a coast city and dropped into one of those little curio shops, which are so much alike the world over. Among other things, I asked the proprietor if he had seen or heard about any meteorites. To any one familiar with a quest of this sort, it was with some astonishment to me that he replied, "Si senor". He went on to explain that a friend of his (in this country nearly all acquaintances are friends) had one which he claimed to be genuine meteorite, but that he, being only a shop keeper, was in no position to judge as to its salability. He thereupon assured me that he would bring it to the shop in one hour. Now in these Latin American countries, an hour may mean most any length of time, but I was fooled in this case, and sure enough in an hour he had the stone. It was another Pallasite and weighed about 5 kilograms. An interesting thing about this one was, that the price asked was almost exactly the same amount in dollars per pound as that asked for in the States.

Before leaving the town, I returned to the same shop and rehearsed again my little speech about the value of meteorites to science, how I was not interested in their commercial value, etc. I then presented my card and gave the fellow pointed directions to let me know first, if he came across any more. It was nearly a year before I heard from him. About three months ago I received a letter offering me a 27 kilogram, "aerolito autentico". It proved to be a beau-

22 kilogram hexahedrite found near Sierra Corda, Chile, about 1898

tiful triangular shaped Pallasite from near Salta in Argentina.

These experiences might indicate that more than the estimated three or four falls annually are actually discovered. But they are not brought to light because of isolation, ignorance, or because buyers have entered the field for speculation. In dealing with itinerate miners and shop keepers who happen to have meteorites, the price is always the main object of discussion. A geologist once advised me to always pay the asking price for a beautiful specimen the first time. After that the word passes around that you have money and are an easy mark. In consequence eccentrics who own specimens will bring them out for inspection. In business of this kind there is no place for high pressure methods. I have found much the same thing true in regard to procuring meteorites here. Not all the specimens I have seen were worth the price, but now that I have obtained some beautiful ones, I am able to heckle on the price with no loss of interest on the part of the owners.

Some six months ago I was waiting for my car in a local garage and one of the employees of the bank came in for his. He had heard that I was interested in purchasing meteorites, and told me a great yarn about one he had heard of through a friend of his. I lost track of the "heard ofs", but the heart of the matter seemed to be that, just having purchased a new 1938 Ford Sedan, he could do with a small commission. Thus far nothing has come of it, but there is always a manana, and this fellow knows pretty well what he can talk me into paying. It may be another six months or a year before I hear of this again, but for an amateur it affords a deal of interest and anticipation, for whether I buy or not, there is sure to be a little private drama.

(Data in first part from; *The Story of Meteorites*—George P. Merrill)

27 kilogram pallasite found near Salta, Argentina

LOCATIONS AHOY!

By R. NEWTON MAYALL, Chairman
Location Committee, Boston Mineral Club

Like all clubs, the Boston Mineral Club has its full quota of committees and among them is the so-called Location Committee, whose function is primarily to find good locations and keep another committee, called the Field Trip Committee, informed of its findings. Any location committee can be and should be of direct benefit to individual members. Therefore it may be of some interest to other clubs to know how the Location Committee of the Boston Mineral Club operates; what it has done; and how it is of benefit to its members.

In the beginning it was felt that a set of maps covering the whole of New England would be of great value in recording mineral locations. For this purpose a complete set of United States Geological Survey maps was bought. Upon receipt, the maps were sorted into states and combined in accordance with the government index maps, after which they were bound in three volumes.

The first volume contains the state of Maine. The second New Hampshire and Vermont; and the third, Massachusetts, Rhode Island and Connecticut. Each volume is about 16"x20"x1", bound in loose leaf form and fitted with Chicago post expansion binders. The maps are interleaved with a white sheet of Strathmore Parchment wt. No. 16, which is transparent enough to be seen through, and tough enough to stand a great deal of wear and tear. Interleaves were used in order to save wear and tear on the maps themselves. The method of notation is as follows:

Each location is outlined on the maps with a red square. The name of the quarry (mine, or location), date, and list of minerals to be found there are written on the interleaf, in pencil. Pencil is used because it can be easily erased—thus the list can be kept up-to-date. No minerals are listed unless they can be found in reasonably good specimens of cabinet size. If, a few years hence, a member reports that certain minerals listed cannot be obtained in good specimens of cabinet size, those minerals can be erased and the date changed; or a notation may be made. Thus at all times, anyone using the maps knows the date of the last recorded list.

The three volumes are kept in the library of the New England Museum of Natural History, where they are available to members any time during the library hours.

There is one other function of the Location Committee—to supply individual members with information regarding localities not recorded on the maps. The committee has tried at all times to be of service in this way, whenever requested. Keeping the idea of service in mind has enabled us to supply mineral locations, or give information concerning localities not listed.

The index map in front of each volume is made of a tracing cloth overleaf, through which may be seen the government index map. The outline of each state is shown upon the overleaf, together with the squares or rectangles, as they appear on the map beneath. Each rectangle is numbered from left to right and right to left, in succeeding rows, beginning at No. 1 in the upper left hand corner of each state. All the maps are numbered in

accordance with this system. It is very easy to find the map showing the town to which one would like to go, by first consulting the index map, there observe the number of the rectangle in which the town appears, then turn to the map desired. If no locality appears on the map, one must then consult some member of the Location Committee in order to learn what minerals may be found in that district.

Each meeting night these volumes are ready references for any member who is contemplating a trip in the near future. This is a very cheap and efficient service to all members who wish to partake of it.

There is one other matter I would like to speak about that concerns me greatly and should be or probably is the concern of many others. I refer particularly to locations and collectors.

I have talked with several people recently as to whether or not a mineral collector is secretive. Perhaps I should say very selfish. It seems to be a fifty-fifty toss up, but fast coming down on the side that says he is. Why, no one knows. To be more explicit—I am referring to the fact that there are certain collectors who willfully withhold knowledge of locations with the idea of reaping all the gold and when it is gone they will let the other fellow know about it. What a narrow, small, selfish, and childlike attitude to take. I know full well this may cause an uproar in some camps —but, beware, the shoe may fit you.

No one has any objection to a person holding secret a location for a short time, and I mean a short time, if he has found a good one. I don't blame him, but to not share this find, unless he returns in a few days and most of us don't, is my idea of downright meanness, and often leads to disaster. Let me sight an example. I recall well a case where a man found some excellent material in a new location, which he held secret. He got a few friends together and had them promise not to tell if he told them the location. (How childlike). A trip was arranged and for one reason or another it was put off and put off, until one day they finally reached the wonderful find. But alas! There was nothing left worth taking home. This was due to dynamite and clean-up gangs. Just see how silly, selfish, and childish this man had been. He lost out when he could have gained. By making the location known to a few collectors who could perhaps visit it within a short time he might have been the recipient of several good specimens in return for his generous information. Thus he would have gained in more ways than one. Or better still, tell your location committee, if you have one. They may know of a member either going to or in that locality, who would be glad to see what he could do about collecting some of the material.

As a general rule the majority of mineral clubs are composed of amateur collectors, who are not engaged in the commercial side of collecting. What reason have they for being secretive? One can readily understand why a commercial collector might want to withhold information about a particular locality, and he has probably paid out good money to obtain an option. Next time any of you want to save a location for yourself, buy an option.

Collectors' Tales

By PETER ZODAC

Faith Has Its Rewards

Mr. Joe Boyle, of the Children's Museum, Brooklyn, N. Y., was one day giving a talk on minerals to a very attentive group of youngsters. Among other things he stated that in gold producing regions miners frequently look for sericite in quartz as it is an indication that gold might be present.

One of the boys was specially interested in the sericite-quartz-gold combination and made some mental notes on it. It so happened that this boy's father was employed in a large building in which there was an assay office. Every once in a while the assay office would throw out small pieces of ore or minerals as of no value which at times the father was able to salvage for his young son's collection. Of course this material would be of no interest to an adult collector but to the youngster it often meant new specimens for his collection.

On the very day Mr. Boyle gave the above talk, the youngster's father brought home an unusually large mass of milky quartz which the assay office had thrown out as of no value. Remembering what Mr. Boyle had said regarding sericite-quartz-gold, the youngster grabbed the specimen and eagerly searched for the pearly mica. It was present. Without any more ado, he tucked the specimen under his arm, left the building and rushed off to the museum. Mr. Boyle was still there and he was breathlessly told of the new find. Gold was present in the quartz, the youngster insisted, because the sericite indicated this.

No gold at all was visible in the quartz and not knowing from whence the mineral came and not wishing to shatter the boy's faith, Mr. Boyle nonchalantly said: "Well, let's break it open to see what is inside".

A couple of well-aimed blows of a sledge hammer split the specimen in two and to the amazement of Mr. Boyle, the interior of the quartz was found to be studded with gold. So much gold was present that twelve nice specimens were obtained. Picking up eleven of the specimens, the youngster calmly walked out leaving behind him a rather dazed curator of mineralogy who gazing mournfully at the specimen before him, said softly to himself: "Can you imagine that! Who else would have had the faith to believe that that mass of milky quartz contained gold!"

Hints for advertisers in "Rocks and Minerals"

We have just issued a small 4 page folder giving valuable hints on advertising in ROCKS AND MINERALS. Even if you do not have anything to advertise, send for a copy as it contains some interesting information. A self-addressed stamped envelope sent with your request to ROCKS AND MINERALS, Peekskill, N. Y., will secure your copy. Send for it today.

CALIFORNIA MINERALOGICAL MEET

By CLARK HARRISON

On April 15-16, 1939, the California Federation of Mineralogical Societies held their fourth annual convention in San Bernardino, California.

More than 400 attended the meet with 15 of California's 17 societies being represented. The Orange Belt Mineral Society of San Bernardino was their official host, with Kenneth Garner officiating as chairman of the meet.

The weather was typically summer, amidst a setting of gorgeous flowers, orange groves and in the distance, snow-capped mountains. The conclave was held in the well-equipped San Bernardino Junior College.

There were numerous private and commercial displays, grab bags, dark rooms for the demonstration of fluorescent and phosphorescent minerals, and displays of lapidiary equipment. Prizes were awarded to competing exhibits in the following groups; Crystal groups, single crystals, flat polished specimens, petrified wood and cabachons.

Many private collections of minerals from all over the world were displayed. There were specimens from the collections of Warner and Grieger of Pasadena, Calif.,; E. W. Chapman of South Pasadena, Calif.,; R. J. H. Mittwer of Los Angeles, Calif.,; and beautiful opals from C. D. Woodhouse of Santa Barbara, Calif. The Golden Bear Nugget, official insignia of the Federation, was also on exhibit.

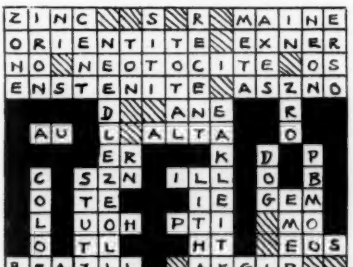
A field trip was made to the Crestmore Quarry a few miles away where 84 minerals have been found.

Th lectures were excellent, most of them being illustrated with lantern slides. State Highway engineer, Allen H. Nichol talked about "Application of Mineralogy to Highway Engineering"; C. D. Woodhouse of the Santa Barbara Gem and Rock Club lectured on "The Opal, A much Maligned Gem"; State Mineralogist, W. W. Bradley spoke on California's minerals, where found, and uses; and Wendell O. Stewart of Mineralogical Society of Southern California, covered his 2500 mile trip into the mining districts of Mexico with Earl Calvert in his talk, "The Mines and Minerals of Old Mexico".

Installation of new officers were as follows: President, E. W. Chapman of South Pasadena; Vice-President, C. D. Woodhouse of Santa Barbara; Secretary-treasurer, Kenneth Garner of San Bernardino. Next year's meet will be held at Santa Barbara, California.

The annual dinner, attended by 235 guests was held in the California Hotel, where the group was greeted by Mayor Johnson of San Bernardino.

Plenty of time was devoted to selling, buying, exchanging and visiting. This was one of the most interesting and most successful convention that California has had.



Last Month's Crossword Solution.

FIELD MUSEUM RECEIVES OLD COLLECTION

A large collection of minerals and fossils, numbering more than 1,500 specimens, collected more than 120 years ago, has been received in the department of geology at Field Museum of Natural History, it was announced May 3rd, 1939, by Clifford C. Gregg, director. The specimens were collected by two women, now on record only as "the Misses Salisbury" of Baggrave Hall, Leicestershire, England, and come to the museum as a gift from Dr. Henry Field, of Chicago. a remote relative. Before their death in the 1820's, these remarkable women had collected minerals and fossils from many of the now "classical" localities both in Great Britain and on the continent, and had acquired mineral specimens from points as distant as California, Siberia, and the East Indies.

Eight hundred of the specimens are invertebrate fossils, including assemblages of forms from the famous English localities of Wenlock, Lyme Regis, and the chalk cliffs, as well as from deposits of many other ages and places. Among the mineral specimens, of which there are more than 600, are representative example of the varied and, in some cases, rare minerals of Cornwall, Devon, Cumberland and Derbyshire, as well as fine collections from Arendal, Norway, and the Vesuvius region in Italy.

In addition to providing a great deal of material for study, some of it from localities in which such specimens can no longer be obtained, collection will enhance the exhibits.

UNRIGHTEOUS COLLECTING

Editor "R & M":

I found the following newspaper clipping in my files. Date and source not noted but from the type it looks like it might have come from the *New York Times*. It might interest the readers of ROCKS AND MINERALS. I got a good laugh out of it myself.

"Probably the most unusual of all the collectors are those who bring home ordinary field rock to be used, after it has been suitably inscribed, in the building of fireplaces. There is a subdivision of the stone-gathering species, however, which prefers to possess only stones chipped from notable edifices, shrines or statues. Naturally these persons are courting trouble, and usually find it.

The most vexatious specimen on record was a Brooklyn woman who carried a mason's hamme everywhere she went. Despite frequent admonitions, she was quite incorrigible. A Mohammedan mob almost dismembered her for dislodging a tile from Jerusalem's Dome of Rock. A Delhi policeman arrested her for nicking corners from beautifully carved stone pillars in the Kutb-ud-Din Mosque, the oldest in India. Though severely reprimanded, she was apprehended the very next day snooping around the Taj Mahal with her mason's hammer."

OSCAR R. SMITH.

BIBLIOGRAPHICAL NOTES

Bulletin du Service des Mines, No. 2 (in French): Issued by the Gouvernement General de L'Afrique Occidentale Francaise, Dakar, Senegal, Africa. 69 pp., 9 plates.

Report of the State Geologist on the Geology of Vermont, 1937-1938: 101 pp., 6 figs., 5 plates. The bulletin embraces the following: *Geology of the Green Mountains of Northern Vermont,* by E. C. Jacobs, pp. 1-73; *Geology of Clay Point, Colchester,* by C. G. Doll, pp. 74-83; *Geology of Vernon, Guilford, and Halifax, Vt.,* by C. H. Richardson and J. E. Maynard, pp. 84-96; *The Cambrian Rugg Brook Formation of Franklin County,* by B. F. Howell, pp. 97-101. Issued by the Vermont Geological Survey, Burlington, Vt.

Woodland Trail Walks with the H.T.B.: Compiled by Ernest A. Dench, Ho-ho-kus, N. J., 44 pp., price 10c. The Hiking Trips Bureau, of which Mr. Dench is director, has scheduled weekly Sunday trips through many interesting areas of the east. As some of these hikes include visits to abandoned mines, they should be of much interest to mineral collectors.

Weather Phenomena of the Colorado Rockies: By Ronald L. Ives. It is too bad that this very interesting report could not have been issued a year sooner as then it would have been of much value to two of our members, Arthur Montgomery and Edwin Over. Our readers will recall Mr. Montgomery's intensely interesting article—*Storm over Antero*—which appeared in the Dec., 1938, issue of ROCKS AND MINERALS, how very treacherous and sudden were the many storms which hounded them while they were working the Antero locality for aquamarines and phenakites.

Mr. Ives is vice-president of the Rocks and Minerals Association and his paper was printed in the Journal of the Franklin Institute, Vol. 226, No. 6, Dec. 1938, pp. 691-755, 20 figs.

WITH OUR MEMBERS

Mrs. Elma Larimore of Dawson Nebr., reports the finding of some interesting fossil shells in a railroad cut near her city.

F. R. Sprague of Joliet, Ill., is speciallizing in petrified wood and has many fine specimens from Western localities. He is also interested in mineral localities and is hard at work in indexing them.

A. J. Alessi, of Chicago, Ill., announced recently the acquisition of a very choice specimen, "babyite". He has two other choice specimens which he values highly. The latest addition to his collection has been named Robert.

Our congratulations are extended to Mr. and Mrs. Alessi on the birth of their third son. Here are three future members for the Rocks and Minerals Association.

CLUB AND SOCIETY NOTES

NEW HAVEN MINERAL CLUB

The New Haven Mineral Club has just completed its sixth and most successful season. At the October meeting, Charles Thomas of Wallingford was elected President; Frederick Fowler of New Haven, Vice-President; Lillian M. Otersen of West Haven, Secretary; and Sadie Crowley of New Haven, Treasurer.

At the October Meeting the members displayed the best specimens they had collected the preceding summer and made plans for the winter speakers.

In November the Program Committee invited Stephen Varni, a well known New York gem dealer, to give an illustrated talk on various outstanding gems in the world. He also displayed some fine gem and mineral specimens.

At the December meeting the club had the pleasure of hearing John Grenzig, of Brooklyn, N. Y., talk on his 50 years experience collecting mineral oddities some of which he had on display.

During January, Arthur Montgomery of New York City, gave an illustrated lecture on his collecting in Alaska and the Western section of the United States. Some of the minerals he had collected were shown to the members while the finest of his finds are now in the large museums.

In February, James Morton, Curator of the Paterson Museum, visited the club and gave his experiences in collecting at the Zeolite localities in Nova Scotia and at the famous Paterson Quarries of New Jersey.

In March, Professor Daniel T. O' Connell of the City College of New York gave an illustrated lecture covering the Grand Canyon and the geological story of this famous spot. The pictures were in color and enabled the members to see the grandeur of the locality. At the last meeting of the year, April 10th, the members were fortunate enough to see a real professional lapidary at work. Mr. John Vlismas of New York City gave a demonstration of cutting, polishing and finished two paper weights of onyx inlaid with malachite and Death Valley onyx. Many of the members do their own cutting and polishing but they had never been able to discover how to inlay their work and Mr. Vlismas was kind enough to divulge one of the trade secrets.

Regardless of the weather the club has had record turnouts at its meetings and it is hoped that the summer outings will prove as successful. Anyone interested in this hobby is invited to accompany the club during the summer. .The members meet on the Third Sunday in the month at 9:00 a. m., D. S. Time, in front of the Peabody Museum on Whitney Avenue, in New Haven, and anyone needing transportation may call Sadie Crowley at 6-5900.

April 16 Morris Dam, Woodbury and Southbury were visited where there is an abundance of smoky and rose quartz.

May 21 Tungsten Mine at Long Hill where many fine specimens of fluorite, scheelite, topaz and the tungsten ores may be gathered.

June 18 Gillette Quarry at Haddam Neck and the Rock Landing Quarry where specimens of gem quality tourmaline may be found and the general run of minerals associated with feldspar.

July 16 Tilly Foster, Serpentine location with clinochlore, brucite and many other fine minerals in abundance.

Aug. 20 Diamond Ledge, West Stafford, Conn., a famous quartz locality situated along a cool fast running brook in the midst of huge pines and an ideal spot for a warm day.

Sept. 17 Bedford, N. Y., at one of the most famous feldspar quarries where they have mined tons of deep red rose quartz and where the minerals have always been plentiful.

Oct. 15 Roxbury iron and garnet localities where extra fine specimens may be obtained and especially those of pyrite.

The club wishes to thank its many friends and members for their splendid support this past season and urges all interested in this subject to turn out for the summer outings.

Lillian M. Otersen,
Secretary.

The Tenino Chapter

The Tenino Chapter of the Washington Agate and Mineral Society was organized March 3, 1939, at Tenino, Wash., and has a membership of 20. The officers are : D. M. Major, Pres.; Harold Ely, Vice-Pres.; C. L. Comfort, Sec.-Treas.; and Vern Archer, Trustee.

The Club has adopted a uniue publication—the common U.S. postal card—as its official journal, whjch is to be issued monthly under the name of *The Rock Cruiser.* The following citation appears on the bottom of the first issue:

"Save this publication for reference and reminder. Then, too, it may become a "rare first edition." Total circulation 25; maybe this is the "smallest magazine in the world."

NORTHERN CALIFORNIA MINERAL SOCIETY

The following officers were elected at the annual business meeting to conduct the Society's affairs throughout the present year:

Robert M. White, President
James Fidiam, Vice-President
Stanley Sneed, Secretary
O. H. Frey, Treasurer
L. L. Brown, Curator
Karl J. Frisch, Librarian
DIRECTORS:
Francis J. Sperisen
Wm. Pabst, Jr.
Miss Jessie Brock

I. Harold Soper, Delegate to The California Federation of Mineralogical Societies Convention.

Although the Society's headquarters are at 268 Market St., San Francisco, it holds one meeting on the second Wednesday of every month at the Public Library.

Since Feb. 28th, the Society has had an exhibit of fine mineral specimens in the windows of one of San Francisco's leading department stores.

It is better to have a small collection of good minerals than a large collection of poor minerals. Remember the slogan, "Good things come in small packages".

Let your slogan be—"Nothing but the best goes in my collection."